REMARKS

Claims 1, 5, 6, 12, 16, 18, and 19 are currently amended and now pending in the application. Claim 15 has been cancelled by this amendment. No claims are newly added. Support for the amendments can be found throughout the specification, drawings, and claims as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claim 15 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed. Applicant has cancelled claim 15, thereby rendering the rejection moot.

REJECTION UNDER 35 U.S.C. § 103

Claims 1, 16, 18, and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Xu, et al., "A BGP/GMPLS Solution for Inter-Domain Optical Networking," ETF Draft, June 2002 ("Xu") in view of Rajagopalan, et al., "IP over Optical Networks: A Framework – Second Draft Version," 6 June 2002, Internet Engineering Task Force, pp. 1-41 ("Rajagopalan") and Kompella, et al. "OSPF Extensions in Support of Generalized MPLS, Network Working Group – Internet draft, July 2001, pp. 1-9 ("Kompella"). This rejection is respectfully traversed.

Claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Xu in view of Rajagopalan, Kompella, Jagannath (U.S. Pat. No. 6,483,833 B1; "Jagannath"), and Francisco, et al. "Interdomain Routing in Optical Networks," Proceedings of SPIE Opticomm, August 2001, pp. 1-10 ("Francisco"). This rejection is respectfully traversed.

Claims 6, 12, and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rosen, et al., "Multiprotocol Label Switching Architecture," Internet Engineering Task Force, July 2000 ("Rosen") in view of Sasagawa (U.S. Pat. No. 7,336,648 B1; "Sasagawa"), Xu, and Braun, et al., "Management of Quality of Service Enabled VPNs," Communications Magazine, IEEE, Vol. 39, No. 5, pp. 90-98, May 2001 ("Braun"). This rejection is respectfully traversed.

Claim Amendments

Claims 1 and 5 have been amended based on, for example, the recitation on page 31, lines 18-21 of the specification and FIG. 2 of the present application. In order to include the phrases "optical network control instance" and "IP network instance", Claim 5 has also been amended based on, for example, the recitations on page 26, lines 12-16 and page 27, lines 4-21, and FIG. 4 of the present application. In addition, a clerical error in Claim 1 has been corrected. Specifically, the phrase "optical pulse unit" has been replaced with the phrase "optical path unit".

Claims 6 and 12 have been amended based on, for example, the recitation on page 38, lines 18-23 of the specification and FIG. 10 of the present application. In addition, clerical errors in Claims 6 and 12 have been corrected. Specifically, the

phrase "GMPLS" has been replaced with the phrase "MPLS". The specification only mentions MPLS labels, not GMPLS labels. Moreover, the phrase "outgoing interfaces of" has been deleted so as to conform to the embodiments (see, for example, page 38, lines 9-23 of the specification and FIG. 10).

Clerical errors in Claims 16, 18, and 19 have been corrected. Specifically, the phrase "communication network" has been replaced with the phrase "line-exchanging-network" so as to conform to the phrase "with respect to line-exchanging-network, collected by the section for controlling line paths" recited in, for example, the tenth paragraph of Claim 16. In addition, the phrase "packet exchange" recited in Claim 18, fifth paragraph and Claim 19, sixth paragraph has been replaced with the phrase "line-exchanging-network." This is because connection information is collected by the section for controlling line paths.

Arguments

Independent Claims 1 and 5

One of the features of the present application relates to an optical network control instance and an IP network instance. Therefore, in order to further distinguish the invention as recited in Claims 1 and 5 from the cited references, Claims 1 and 5 have been amended as described above. Specifically, optical network control instances are provided so as to be used by all external IP networks. In contrast, IP network instances corresponding to all the external IP networks are provided independent of each other. With such a feature, an advantage such as described on page 32, lines 4-10 of the specification can be obtained. None of the cited references disclose or

suggest such a distinctive feature and advantage. Accordingly, Applicant requests reconsideration and withdrawal of the rejection as to claims 1 and 5.

Independent Claims 6 and 12

As pointed out in Applicant's response to the second Office Action, the invention as recited in Claims 6 and 12 is different from Rosen, which merely discloses that an egress performs an IP address lookup. In order to emphasize such a difference, Claims 6 and 12 have been amended as described above. Specifically, an egress edge router maintains a relationship between identifiers and outgoing interfaces, retrieves an outgoing interface corresponding to an identifier added to an IP packet by using the added identifier as a key, and transmits the IP packet to the retrieved outgoing interface. None of the cited references disclose or suggest such a distinctive feature. Accordingly, Applicant requests reconsideration and withdrawal of the rejection as to independent claims 6 and 12, and dependent claim 15.

Independent Claim 16

With respect to the claimed cooperative control section, the Examiner cites Xu and asserts that the IP egress edge router of the client network contacts the ingress edge router in the provider network via BGP to initiate a label switched path (page 10, first paragraph of the Office Action).

However, the claimed cooperative control section is provided in a packet exchanger. Therefore, an operation between the IP egress edge router provided at a client side and the ingress edge router provided at a provider side in Xu is irrelevant to

an operation of the claimed cooperative control section (i.e., an internal operation of the packet exchanger).

With respect to the claimed limitation that the sections for controlling line paths in the line exchangers and the sections for controlling line paths in the packet exchangers acknowledge line connection conditions in a communication network, by exchanging information of the communication conditions among the communication lines, the Examiner cites page 9 (i.e., section 6.2) of Xu (page 10, last paragraph to page 11, first paragraph of the Office Action).

However, the recitation of Xu pointed out by the Examiner relates to internal operations of a provider network. In addition, Xu states that a provider does not need to store information about the topology of other autonomous systems (AS-es). This teaches away from information exchange between a provider and entities that are present outside the provider. Xu fails to disclose or suggest the claimed limitation that both the line path controlling section provided in the packet exchangers and the line path controlling section provided in the line exchangers exchange information with one another (i.e., between a packet exchanger and a line exchanger, and between a line exchanger and another line exchanger).

Moreover, the Examiner mentions a path for carrying packets between clients in Xu. However, this does not suggest the aforementioned information exchange between a packet exchanger and a line exchanger, and information exchange between line exchangers.

With respect to the claimed limitation that the cooperative control section in the packet exchangers selects paths by referring to two pieces of connection information

with respect to line-exchanging-network, collected by the section for controlling line paths, and connection information with respect to packet-exchange network collected by the section for controlling packet paths, the Examiner relies on page 7, section 8 of Xu. The Examiner asserts that the provider ingress edge router has an intra-domain routing process that creates the intra domain label switched path based on the interior optical network information and the egress edger IP address, and that the instruction to create such a path must include the connection information of the line exchange and the packet path information (page 11, second paragraph of the Office Action).

However, as described above, the claimed cooperative control section is provided in a packet exchanger. Therefore, the Examiner's assertion based on internal operations of a provider (i.e., operations within a line-exchanging-network) is irrelevant to the operation of the claimed cooperative control section. Accordingly, Applicant requests reconsideration and withdrawal of the rejection as to claim 16.

Independent Claims 18 and 19

Claim 18 is directed to a packet exchanger which corresponds to an information transmission network system recited in Claim 16. Claim 19 is directed to a packet/line exchanger which corresponds to the information transmission network system recited in Claim 16. Moreover, the Examiner's assertions with respect to Claims 18 and 19 are similar to those with respect to Claim 16. Therefore, the foregoing arguments based on Claim 16 can be applied to Claims 18 and 19. Accordingly, Applicant requests reconsideration and withdrawal of the rejection as to claims 18 and 19.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: March 2, 2011

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